

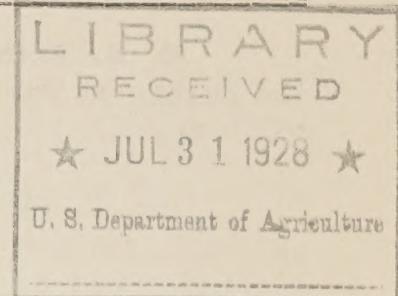
Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

85
MONTHLY LETTER OF THE BUREAU OF ENTOMOLOGY
UNITED STATES DEPARTMENT OF AGRICULTURE

Number 170

June, 1928



COTTON-INSECT INVESTIGATIONS

B. R. Coad, in Charge

G. C. McCall, Field Assistant at the Delta Laboratory, is conducting a course in Spanish for members of the staff, particularly those who may in the future conduct entomological investigations in Mexico. The class began June 11 and meets three times a week, with eleven students in regular attendance.

Dr. Unio Saalas, Professor of Agriculture and Forest Zoology, Helsingfors, Finland, was a visitor at the field laboratory at Tallulah June 27 and 28. Dr. Saalas' special interest is in the study of forest insects and their control. Demonstrations of dusting with airplanes and machinery operated on the ground were of great interest to him. His travels in the United States will include visits to several national forests and universities. He will attend the International Entomological Congress at Cornell University in August.

John F. Payne, pilot of the Tallulah field laboratory, spent June 19 and 20 in airplane dusting of pecan trees at Albany, Ga., in cooperation with J. B. Demaree, of the Division of General Orchard Disease Investigations, Bureau of Plant Industry.

V. V. Williams, J. K. V. Stewart, and D. H. Ratcliff, of the Tallulah field laboratory, left Tallulah for Ardmore, Okla., June 19. Messrs. Stewart and Ratcliff will assist Mr. Williams in tests on control of the boll weevil, to be conducted in cooperation with the Oklahoma State Experiment Station and Extension Service.

The following men were appointed as temporary assistants at the field laboratory at Tallulah in the month of June: Rex L. McGarr, David C. Young, Herman D. Tate, J. K. V. Stewart, D. H. Ratcliff, Geo. A. Nail, Ulys R. Gore, John S. Graham, Jas. E. Culpepper, Robert T. Patty, Bertram A. Moers, Fred B. Russell, T. C. Fortenberry, Sloan E. Jones, and W. L. Baker.

F. C. Bishopp spent June 3 at the Florence, S. C., field laboratory, going over the cooperative work on the boll weevil now under way in South Carolina. This work is carried on jointly by the Bureau of Entomology and the experiment station and extension service of that State.

TAXONOMIC INVESTIGATIONS

S. A. Rohwer, in Charge

H. G. Barber, of Roselle, N. J., has accepted an appointment with the Bureau of Entomology effective June 1, to spend two months in a critical study of the neotropical Reduviidae in the National Museum collection.

Dr. T. Shiraki, of the entomological division of the Japanese experiment station at Formosa, visited the Museum June 9 to June 12, and studied types of Japanese Diptera.

Dr. L. H. Taylor, Associate Professor of Zoology in the University of West Virginia, arrived in Washington June 11, under an appointment with the Bureau of Entomology, and will spend three months studying and arranging the Museum collection of Chrysidae. Dr. Taylor is working on a revision of the nearctic chrysids, which will probably be completed within a year.

Dr. F. W. Pettey, senior entomologist of the Department of Internal Affairs, Union of South Africa, Cape Town, visited the Museum June 13, in search of information regarding certain egg-parasites of South African insects.

Dr. Unio Saalas, Professor of Entomology at the University of Helsingfors, Finland, was in Washington June 16 to June 19, and consulted with Dr. Böving and other specialists in the Division of Taxonomy. Dr. Saalas is interested in Coleoptera, especially the larvae, and has published extensively on them. While here, he presented copies of several of his publications to the National Museum Library.

Mr. C. F. Stahl, of the Baragua, Cuba, laboratory of the Tropical Plant Research Foundation, visited the specialists in the Division of Taxonomy June 18. In the section of Hymenoptera he conferred with Messrs. Gahan and Cushman regarding parasites of the sugar-cane moth borer. In the section of Coleoptera he discussed Cyclocephala and other Scarabaeidae which affect sugar cane, and promised to send considerable material of various groups of Coleoptera.

Professor Teiso Esaki, of the Kyushu Imperial University, Fukuoka, Japan, studied various Hemiptera in the Museum collections June 18 to June 25, giving particular attention to the Uhler types of Japanese Hemiptera. Through the courtesy of H. S. Barber he was taken to Plummer's Island to search for aquatic Hemiptera in which he is particularly interested.

Judson Coxey and R. C. Williams, Jr., of Philadelphia, visited the section of Lepidoptera on June 20.

Dr. Thomas S. Van Aller, of Mobile, Ala., called at the Museum recently to confer with various specialists, particularly the lepidopterists and coleopterists.

J. Carroll, of the University of Dublin, Ireland, called at the Division of Taxonomy June 26, to meet the specialists of the Bureau of Entomology. Mr. Carroll has just completed a year's work at Cornell University.

The section of Hymenoptera has received from D. S. Wilkinson, of the British Museum, as a part of an exchange, cotypes of 15 species of Braconidae, mostly representatives of oriental species recently described by Mr. Wilkinson. This is a valuable addition to the Museum collection.

CEREAL AND FORAGE INSECT INVESTIGATIONS

W. H. Larrimer, in Charge

Dr. and Mrs. Uunio Saalas, of Finland, visited the sugar-cane insect laboratory at New Orleans in June.

H. A. Jaynes, formerly assigned to the Japanese Beetle Laboratory, has been transferred to the project of introduction of parasites of the sugar-cane moth borer. He spent the month of June in Louisiana studying problems relative to sugar-cane insects. In July he will go to Argentina, where he will study and collect parasites of the moth borer for shipment to Louisiana.

T. E. Holloway was in Washington about the middle of June for conference. He also visited the Japanese Beetle Laboratory at Mores-town, N. J., where he was particularly interested in the parasite equipment.

Dr. J. C. Hamlin reported June 21 at the Salt Lake City Laboratory, where he will assist G. I. Reeves in investigations of the alfalfa weevil.

C. M. Packard, en route from Carlisle, Pa., to experimental plats in Ohio and Indiana, spent June 28 and 29 in the Washington office in consultation with Bureau officials regarding work on the Hessian Fly.

Dr. W. R. Thompson, formerly in charge of the European parasite Laboratory at Hyères, Var, France, has resigned to take charge of the Farnham Royal Laboratory, located at Farnham, England. Dr. H. L. Parker, who has been associated with Dr. Thompson for a number of years, has been placed in charge of the Hyères laboratory.

H. D. Smith, formerly of the Carlisle, Pa., laboratory, has accepted a transfer to the European Corn Borer Laboratory at Hyères, Var, France, where he will assist Dr. Parker in the collection and shipment of parasites of the corn borer and alfalfa weevil to the United States. He sailed for Europe June 14.

TRUCK-CROP INSECT INVESTIGATIONS
J. E. Graf, in Charge

On June 7 C. O. Bare returned to Sanford, Fla., from a brief trip to California, where he had studied methods of rearing egg parasites on a large scale.

R. E. Campbell, Alhambra, Calif., J. C. Elmore, Garden Grove, Calif., and M. C. Lane, Toppenish, Wash., attended the meetings of the Pacific Slope Branch of the American Association of Economic Entomologists at Pomona College, Claremont, Calif., June 14 to 16, 1928.

On June 18 N. F. Howard returned to Columbus, Ohio, from a scouting trip for the Mexican bean beetle in the Southeastern States. The principal points visited were Newport and Chattanooga, Tenn., and Birmingham, Ala.

Dr. Bernard Trouvelot, of Versailles, France, who as heretofore stated is in this country studying parasites of the Colorado potato beetle, returned June 19 to his station at Geneva, N. Y., where he began the work of breeding these parasites.

W. J. Reid, Jr., Chadbourn, N. C., visited Washington June 19 to 30 to do library work and consult with Bureau workers on the problem of the seed-corn maggot.

Walter Carter, Twin Falls, Idaho, was temporarily transferred to St. Paul, Minn., June 21, to complete some library and manuscript work relating to his ecological investigations. These investigations are used as a basis for predicting the destructive abundance of the sugar-beet leafhopper.

K. L. Cockerham, Biloxi, Miss., visited Chadbourn, N. C., June 19 to 21, where he discussed with J. N. Tenhet the methods of handling and rearing wireworms.

F. H. Shirck and K. E. Gibson, Toppenish, Wash., attended the meetings of the Northwest Association of Horticulturists, Entomologists, and Plant Pathologists, at Vancouver and Victoria, B. C., June 25 to 27.

W. A. Thomas, Chadbourn, N. C., visited Augusta and other points in Georgia, June 26 and 27, on business relating to the problem of the Porto Rican mole cricket.

W. H. White, of the Washington office, visited State College, Pa., June 27 and 28, to arrange for cooperative investigations on mushroom pests.

C. H. Popencoe, Washington, visited Lansing, Mich., June 25, to consult with Prof. C. W. Bennett relative to their studies on the transmission of berry mosaic; also to look into the possibility of selecting berry pests to be sent to New Zealand for use in combating the blackberry plants which have become a serious pest in certain parts of that country. He brought back with him a large number of specimens of the blackberry sawfly, the blackberry plume moth, and the raspberry cane-borer.

D. M. Delong visited Washington June 29, en route to his home at Columbus, Ohio, after making field observations on the Mexican bean beetle in the Southeastern States.

On June 28 N. F. Howard visited Geneva, N. Y., where he and Rodney Cecil went over the work on the Mexican bean beetle.

C. E. Smith returned to the field laboratory at Baton Rouge, La., June 29, from Clarksville, Tenn., where he discussed the subject of chemotropism with A. C. Morgan and S. E. Crumb.

D. E. Fox has been appointed Agent at Twin Falls, Idaho, to assist in ecological investigations on the sugar-beet leafhopper.

Temporary appointments have been given to H. Beerman, Philadelphia, Pa., W. F. Senette, Baton Rouge, La., H. L. Ratcliffe and O. R. Causey, Chadbourn, N. C., A. L. Goodrich and V. E. Romney, Twin Falls, Idaho, T. E. Bronson, Madison, Wis., H. L. Dees, Grand Bay, Ala., D. M. Delong and D. F. Miller, Columbus, O., W. J. Douglass, Estancia, N. M., and S. C. Lyon, Clarksville, Tenn.

FOREST-INSECT INVESTIGATIONS

F. C. Craighead, in Charge

On June 18 Dr. F. C. Craighead started on an extended trip, to inspect forest-insect projects in Nebraska, Colorado, Montana, and California. He will return to the East in August, to attend the meetings of the International Congress of Entomologists, which will be held at Ithaca, N. Y.

On June 21, at the twenty-second annual meeting of the American Society of Agricultural Engineers, held at Washington, D. C., June 19 to 22, Dr. T. E. Snyder addressed the Structures Section of the Technical Division on methods of protecting buildings from attack by termites.

Dr. Uunio Saalas, Professor of Agriculture and Forest Zoology at the University of Helsingfors, Finland, arrived in Washington June 15 and consulted with this office on the arrangement of an itinerary to visit some of the forest-insect field laboratories and the experiment stations of the Forest Service. He will also visit some of the other field laboratories of the Bureau of Entomology.

JAPANESE BEETLE INVESTIGATIONS

Loren B. Smith, in Charge

Dr. F. W. Pettey, senior entomologist of the Department of Agriculture of South Africa, visited the Japanese beetle laboratory on June 11.

Herbert Osborn, Jr., formerly of the Hawaiian Sugar Planters' Experiment Station, visited the Japanese beetle laboratory on June 17 to study methods of shipping and handling parasites.

D. M. Daniels, of the Geneva, N. Y., Agricultural Experiment Station, recently spent two weeks at the Japanese beetle laboratory in an endeavor to transfer parasites of the oriental peach moth from New Jersey to New York.

At the present time five species of Oriental parasites of the Japanese beetle are established in New Jersey, there being two species of *Tiphia* and one each of *Centeter*, *Dexia*, and *Prosena*. *Tiphia vernalis* was recently recovered for the first time from a colony that was established two years ago. The same species has been recovered from three colonies established last year. *Dexia ventralis* has been recovered, in both this year and last year, from the first colony established. Twenty-three thousand *Tiphia* cocoons have been received this year from India, and a shipment of 3,000 adult *Tiphia vernalis* from Japan arrived in good condition, with 42 per cent alive. Five thousand *Prosena sibirita* were received from Japan on parasitized grubs.

The miscible carbon disulphide developed in 1927 has given excellent results under varied commercial conditions during the spring of 1928.

C. H. Hadley reported at Riverton, N. J., June 15. Upon the separation, July 1, of the quarantine and research phases of the Japanese beetle project, Mr. Hadley will assume direction of the quarantine work. L. B. Smith will continue, as heretofore, in charge of the research laboratories.

Allison Lee, of Earlham College, Richmond, Ind., is assisting for the summer in physiological problems at the Japanese beetle laboratory.

J. L. King, of the University of Minnesota, is assisting Dr. Henry Fox in ecological studies at the Japanese beetle laboratory.

M. R. Osburn is temporarily stationed at the Westbury, L. I., laboratory, conducting investigations on the control of *Anomala orientalis* Waterh. and *Aserica castanea* Arrow.

Prof. O. G. Anderson, of Purdue University, is temporarily employed at the Japanese beetle laboratory at Moorestown.

The larval surveys conducted during the late spring and early summer of the present year at numerous stations within the heavily infested area indicate a marked reduction of Japanese beetle population at all stations where the beetle has been long established and a decided increase in the newer stations. In other words, there is an increase in the stations lying near the periphery of the heavily infested area and which have only recently been invaded by the insect. This increase has been especially noteworthy in northern and northwestern sections of Philadelphia and in neighboring counties in Pennsylvania situated north and northwest of that city. There seems to be no question that the center of beetle population has shifted within the past few years from New Jersey to Pennsylvania, and that it now coincides with an area roughly defined by such localities as Bustleton, Somerton, Philmont, Bethayres, Cheltenham, Jenkintown, and the northern suburbs of the city of Philadelphia.

Periodic events of the seasonal history of the Japanese beetle have taken place in the present year at very nearly the same time as in 1927, both years being much alike as regards the number of temperature units accumulated during the spring. In this year the earliest indication of the advent of the period of metamorphosis was obtained on May 28, when larvae in the prepupal condition were first found. The first pupa was taken on June 7, and on June 11 the first adults were obtained at two stations within the limits of the city of Philadelphia. In New Jersey the earliest verified record of an adult was made on June 15, when an adult was taken in Moorestown. Beetles continued very scarce in the vicinity of Moorestown until as late as June 25, when they began to be moderately numerous in limited areas. By the end of the month they had not become sufficiently abundant to do any obvious damage.

An unusually large proportion of the Japanese beetle larvae hatched in 1927 passed the winter in the first and second instars, doubtless owing to the unusually low temperature prevailing in August of that year. August is ordinarily the month in which the vastly greater number of larvae pass through the first two instars; and the unseasonable temperatures during that month in 1927 were doubtless responsible for the unusually large number of larvae failing to complete their growth before the advent of winter forced all the larvae into winter dormancy.

A radio talk, "Methods of Japanese Beetle Control," was delivered June 1 through Station WIP, Philadelphia, by L. B. Smith, in connection with a suppression campaign inaugurated by the Pennsylvania Department of Agriculture and the Extension Service.

TROPICAL AND SUBTROPICAL PLANT INSECT INVESTIGATIONS

A. C. Baker, in Charge

On June 4 Dr. A. C. Baker returned to Washington from Mexico, after visiting en route the office in Harlingen, Tex., and the field laboratory in New Orleans. While in Mexico he completed the organization of the work there for research on the Mexican fruit worm, both at the central laboratory and at the field insectaries. As a result of his negotiations with the Mexican authorities the Mexican Government is providing the Bureau of Entomology with two concrete buildings in Mexico City for the main laboratories, located on the campus of the veterinary college formerly there. These buildings have been completely equipped for modern entomological research. They contain a constant-temperature room, a battery of incubators, Carrier air-conditioning units, a complete chemical laboratory, a room for media, a room with specially designed lighting for microscopical work, and a shop.

Dr. Baker, while in Mexico, visited the Governor of Morelos and arranged for investigations at Cuernavaca, where an insectary has been completed and work has been under way for some time. This is one of the field units of the laboratory at Mexico City. The entire program of research as outlined is conducted in cooperation with the Oficina para Defensa Agricola of the Mexican Department of Agriculture, which is responsible for two other field units, one at Vera Cruz and one at Villa Hermosa. On the whole, the arrangements are exceedingly satisfactory, and the finest spirit of cooperation and good will exists. The projects of the Mexican Government are represented by Dr. Adolph Dampf, who some time ago was appointed collaborator in this work. Dr. C. I. Bliss, of the New Orleans field laboratory, has temporarily directed the part of the work belonging to the Bureau of Entomology, pending the appointment of a suitable person to have permanent charge. Mr. McPhail is handling the insectary at Cuernavaca.

On June 25 Dr. Baker left Washington for a trip to the Northwest and the Pacific Coast, to look after the organization of the work there in charge of this Division. In the State of Washington he will visit C. F. Doucette, in charge of the field laboratory at Puyallup for the study of insect pests of bulbs; and in California he plans to meet Dr. F. R. Cole in charge of the field laboratory at Santa Cruz, Dr. E. A. McGregor, in charge of the field laboratory at Lindsay, and Dr. L. Stickney, of Palo Alto. He plans to stop also at Indio, where investigations of the date scale are being carried on.

Dr. F. R. Cole, in charge of the field laboratory at Santa Cruz, Calif., recently visited the bulb-producing areas near Los Angeles, on business relating to insect pests of bulbs and of ornamental plants.

P. A. Hoidale, in charge of eradication of the Mexican fruit worm, with headquarters at Harlingen, Tex., was in Washington June 10 to June 25 to review with Doctor Baker the results of the work there, and to confer with Doctors Marlatt and Fracker, of the Federal Horticultural Board, and S. A. Rohwer, of the Bureau of Entomology, on plans for the work to be conducted in the future.

Frank Irons, Dave Isler and H. W. Goyings, of the corn borer engineering staff at Toledo, Ohio, called at the Harlingen office early in June.

The work in June of the Mexican fruit worm project in the lower Rio Grande Valley of Texas consisted mostly in completing a census of host fruits, compiling the resulting data, and keeping summer hosts under surveillance to prevent the development of the fruit.

BEE CULTURE INVESTIGATIONS

James I. Hambleton, in Charge

Jas. I. Hambleton spent the early part of the week of June 4 in Baton Rouge, La., completing arrangements for the establishment of the bee-culture field station authorized by the last session of Congress. The station will be established in connection with the University of Louisiana, which has offered the Bureau of Entomology laboratory quarters, heat, light, janitor services, and certain funds for the purchase of equipment. The work there will begin shortly after July 1, with W. J. Nolan, of the Washington office, temporarily in charge.

Dr. H. E. Barnard, president of the American Honey Institute, Indianapolis, Ind., conferred with officials of the Department of Agriculture and Department of Commerce in the week of June 18 concerning the activities of his organization. The American Honey Institute, whose primary purpose is to increase the sale of honey through educational means, is financed by the Bee Industries Association of America, which is composed of the principal manufacturers of beekeepers' supplies, honey bottles, and other merchandise relating to apiaries and their products.

Miss Winifred S. Hull, a medical student of Johns Hopkins University, has been appointed temporary Field Assistant, to assist in the diagnosis of bee diseases, and to examine samples of adult bees to determine whether the Isle of Wight disease is present in the United States.

Miss Mary Louise Crossman, who has just received a master's degree at the University of Michigan and was employed at the Bee Culture Laboratory last summer, has been reappointed temporary Field Assistant, to participate in investigations dealing with bee behavior, particularly with factors determining the longevity of adult bees.

A representative of the Munsell Color Co., Inc., of Baltimore, visited the Bee Culture Laboratory on June 27 to confer with the members of the staff concerning the future manufacture of the Pfund honey grader, which has been taken over by this company. The Munsell Color Company is working on an attachment for the grader which will make it possible to determine the degree of cloudiness in honey without interfering with the color readings, and is also perfecting a standard daylight lamp to be used with the grader.

Ralph K. Day, a graduate student of the California Institute of Technology, has been appointed temporary Field Assistant to investigate changes in the color of honey brought about by the influence of temperature, light, age, and other factors.

Visitors at the Bee Culture Laboratory in June included Prof. A. G. Ruggles, of the University of Minnesota, and Mr. J. C. Dods, of the Kansas City, Mo.

STORED-PRODUCT INSECT INVESTIGATIONS

E. A. Back, in Charge

Gilbert Schenk, a graduate of the Colorado Agricultural College, was appointed Associate Entomologist on June 28, and will take up a study of insect control in flour mills with headquarters at Manhattan, Kans. During the past three years he was employed in practical research by the American Cyanamid Sales Co. Mr. Schenk's training and experience fit him especially for cooperative work with the milling industry.

C. K. Fisher, A. O. Larson, W. D. Reed, and Perez Simmons attended the June meetings, at Claremont, Calif., of the Pacific Slope Branch of the American Association of Economic Entomologists.

The "Furniture Manufacturer" for May carried a fourth and last popular article on insects in furniture, by Back and Cotton. As in the case of the three preceding articles, one thousand reprints were furnished the authors gratis.

On June 8 and 9 Dr. Back was in New York City, attending demonstrations in several of the world's largest storage warehouses.

On June 17 C. K. Fisher gave a talk on the bean weevil situation in Stanislaus County before the Golden West Farm Center in San Joaquin County. This is one of numerous talks given by Messers. Larson and Fisher on the problem of the bean weevil.

The paper by Perez Simmons and W. D. Reed, on insect infestation of dried figs, read at recent Pomona meetings, has been mimeographed at the request and expense of the California Dried Fruit Association for immediate distribution to the Association's membership. Among other things, Simmons and Reed are getting some very interesting data on the biology of the dried-fruit beetle. One beetle had laid about 900 eggs at the time the paper was written. In a trap devised by Mr. Simmons 38,500 dried-fruit beetles were caught in a 35-day period in March and April.

Dr. J. C. Hamlin, formerly of this office, has been transferred to the Division of Cereal and Forage Insects to assist G. I. Reeves in investigations of the alfalfa weevil at Salt Lake City.

INSECTS AFFECTING MAN AND ANIMALS

F. C. Bishopp, in Charge

H. M. Brundrett was appointed Field Assistant on June 15, to continue studies on fly sprays and spraying apparatus at the Dallas, Tex., field laboratory.

F. C. Bishopp made a survey of the cattle-grub situation in the vicinity of Schenectady and Albany, N. Y., June 19 to 23, and instituted some experimental work there. On June 28, accompanied by H. M. Brundrett, who had come to Washington, he again visited Schenectady, where Mr. Brundrett will spend three weeks conducting studies on cattle grubs.

DECIDUOUS-FRUIT INSECT INVESTIGATIONS

A. L. Quaintance, Associate Chief of Bureau, in Charge

Fred E. Brooks, in charge of the field laboratory at French Creek, W. Va., writes that recent visitors at the station were Dr. P. D. Strausbaugh, Emerson Carney and C. L. Brooks, all of the West Virginia University, at Morgantown.

B. Elwood Montgomery reported June 16 for duty as Field Assistant at the Vincennes, Ind., laboratory. Mr. Montgomery served in the same capacity at Vincennes during the summer of 1924.

LIBRARY

Mabel Colcord, Librarian

NEW BOOKS

American Engineering Standards Committee.

American standard mathematical symbols. Prepared by sectional committee on scientific and engineering symbols and abbreviations.

5 [3] p. New York, 1928. (A. E. S. C. Z 10f-1928.)

Carpenter, G. H.

The biology of insects. 437 p., illus. London, Sidgwick & Jackson, Ltd., 1928. (References, p. 449-464.)

Catalogue of Indian Insects, Part 13. Cicindelidae, by Mercia Haynes-Wood and Cedric Dover. 138 p. Calcutta, 1928.

Codina, A.

Adicion al conocimiento de las especies españolas de "Halictus" (Hym. Apidae) de P. Blüthgen. 18 p. Barcelona, Museo de ciencias naturales, June, 1925. (Trabajas del Museo de ciencias naturales de Barcelona, v. 11, No. 2.)

Dodd, A. P.

The biological control of prickly pear in Australia . . . 44 p., 9 pl., incl. map. Melbourne, A. J. Green, government printer, 1927. (Australia Council for Scientific and Industrial Research. (Bul. 34.)

Ghosh, C. C.

The silk industry in the whole of India and Burma. Royal committee on agriculture in India v. 12. Evidence taken in Burma, 1928, p. 302-338.

Henry, Max, and Belschner, H. G.

External parasites of sheep, with plans for sheep-dip construction. 21 p. Feb., 1926. (New South Wales Dept. Agr. Farm. B. 154.)

Horn, Walther, and Schenkling, Sigmund.

Index litteraturae entomologicae. bd. 1. Berlin-Dahlem, Mai, 1928. Ser. 1. Die Welt-Literatur über die gesamte Entomologie bis inklusiv 1863. Aalborg-Ferrière. 352 p.

Jack, R. W.

Ticks infesting domestic animals in Southern Rhodesia. Rhodesian Agr. Jour., v. 25, No. 5, p. 537-556, illus., May, 1928.

Jackson, B. D.

A glossary of botanic terms with their derivation and accent. Ed. 4, rev. and enl. 481 p. Philadelphia, J. B. Lippincott Company, 1928.

Jackson, Dorothy J.

The inheritance of long and short wings in the weevil (*Sitona hispidula*), with a discussion of wing reduction among beetles. 665-735 p., 7 pl. (Roy. Soc. Edinburgh. Trans., v. 55, pt. 3, No. 27.) (Bibliography, p. 731-733.)

Neff, J. A.

A study of the economic status of the American woodpeckers in relation to Oregon horticulture. 68 p., pl. Marionville, Mo., Free Press Print, 1928. (Literature cited, p. 66-68.)

Patton, W. S. and Hindle, Edward.

The North Chinese speciae of the genus Phlebotomus (Diptera, Psychodidae). Proc. Roy. Soc. London, ser. B, v. 102, B. 720, p. 533-551, illus., April, 1928. (References, p. 551.)

Perfiljew, P.

Beiträge zur Anatomie der Phlebotomus-Larven. Centralbl. f. Bakt. Parasit. u. Infektionskrank. Abt. I. Orig. Bd. 107, Hft. 4/5, p. 296-305, illus. May 14, 1928. (Literaturverzeichnis, p. 305.)

Reinstorf, A. P. N.

Uebertragung der Ruhr durch Fliegen. 21 p. Berlin, Morenhoven, 1923. ("Literatur," p. 18-21.) (Sonderabdruck aus "Desinfektion" Marz/April, 1923.)

Sato, R.

Ueber bakterielle Krankheiten der Seidenraupen (*Bombyx mori* L.), insbesondere über die Septikamie. Centralbl. f. Bakt. Parasit. u Infektionskrank. Abt. I. Orig. Bb. 107, Hft. 4/5, p. 234-278, May 14, 1928. (Literaturverzeichnis, p. 278.)

Smith, R. C.

The courses in entomology offered in American colleges. 23 p. 1928. (Kans. State Agr. Col. Bul. v. 12, No. 1.) (Bibliography, p. 23.)

Zeitschrift für wissenschaftliche Biologie. Abt. F. Zeitschrift für Parasitenkunde Bd. 1, Berlin, Apr. 17, 1928.

